REMARKS

I. INTRODUCTION

In response to the Office Action dated January 7, 2005, claims 17, 18, 21 and 22 have been amended. Claims 1-24 remain in the application. Entry of these amendments, and re-consideration of the application, is requested.

II. PRIOR ART REJECTIONS

A. The Office Action Rejections

In paragraph (2) of the Office Action, claims 17-19 and 21-23 were rejected under 35 U.S.C. §102(e) as being anticipated by Palermo, U.S. Patent No. 6,181,734 (Palermo). In paragraph (3) of the Office Action, claims 1-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sieppi, U.S. Patent No. 6,577,637 (Sieppi) in view of Palermo. In paragraph (4) of the Office Action, claims 20 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Palermo in view of Hsu, U.S. Patent No. 6,587,684 (Hsu).

Applicants' attorney respectfully traverses these rejections.

B. The Applicants' Independent Claims

Independent claims 1 and 5 are directed to tunneling voice data over one or more networks. Claim 1 is representative of both claims, and comprises the steps of:

(a) transmitting a notification to a called party's network that a calling party's handset is calling from a particular type of network; and

(b) loading one of a plurality of software-defined vocoders into the called party's handset based on the transmitted notification, wherein the loaded software-defined vocoder, when executed by the called party's handset, translates voice data communicated between the calling party's handset and the called party's handset.

Independent claims 9 and 13 are directed to tunneling voice data over one or more networks. Claim 9 is representative of both claims, and comprises the steps of:

(a) receiving a notification from a calling party's network that it is a particular type of network; and

(b) loading one of a plurality of software-defined vocoders into a called party's handset based on the received notification, wherein the loaded software-defined vocoder, when executed by the

called party's handset, translates voice data communicated between the calling party's handset and [illegible] the called party's handset.

Independent claims 17 and 21 are directed to tunneling voice data over one or more [illegible] networks. Claim 17 is representative of both claims, and comprises the steps of:

(a) loading one of a plurality of vocoders into a processor of a called party's handset, wherein the loaded vocoder is selected based on a particular type of network communicating with a calling party's handset; and

(b) executing the loaded vocoder in the processor of the called party's handset, wherein the vocoder translates voice data communicated to the called party's handset from the calling party's handset.

C. The Palermo Reference

Palermo describes a radio in which different waveforms may be utilized. The radio includes a memory (801) in which software (802, 805, 806) for specific waveforms is stored. The radio further includes one or more processors (807, 809, 811) which extract waveform specific software to process information for transmission or reception. All processing of the information between reception or reproduction of speech and transmission and reception of radio frequency signals, respectively, is performed in software.

D. The Sieppi Reference

Sieppi describes a switching means (BSC/MSC/VLR) of a mobile radio communication network (PLMN) that contains a subscriber type determining means (SSTDM) which determines on the basis of call set-up messages whether in particular the second subscriber station (WS) of an IP-network (INTRANET) is capable of performing an audio data encoding/decoding, in particular a GSM speech encoding/decoding. The subscriber station type determining means (SSTDM) switches off an audio data encoding/decoding means (CODEC) in a base station controller (BSC) if the second subscriber station (WS) is capable of performing the speech encoding/decoding. Thus, a deterioration of the speech quality due to performing unnecessary audio data encoding/decoding is avoided and the bandwidth in the PLMN/data network can be utilized more efficiently.

E. The Hsu Reference

Hsu describes a digital wireless telephone that downloads software related to digital telephone services using a client browser. The digital telephone initiates a data call to an [illegible] interworking unit via a digital wireless telephone network, using a prescribed wireless data protocol such as IS-95A. The interworking unit recovers the payload of the wireless data packets to establish a two-way data link with the digital telephone. The interworking unit sends data messages to a destination server across a second two-way data link in a packet switched network to establish a two way session between the digital telephone and the destination server. The user of the digital telephone can thus communicate with the server via a two-way application-layer session using hypertext-based messaging. The digital telephone can thus navigate between different servers on the packet switched network for activation of different digital telephone services, and for downloading new software or updating existing software related to the digital telephone services.

F. The Applicants' Invention is Patentable Over the References

The Applicants' invention, as recited in the independent claims, is patentable over the references, because it contains limitations not taught by the references.

With regard to claims 17-19 and 21-23, the references do not teach or suggest loading one of a plurality of vocoders into a processor of a called party's handset, wherein the loaded vocoder is selected based on a particular type of network communicating with a calling party's handset, and executing the loaded vocoder in the processor of the called party's handset, wherein the vocoder translates voice data communicated to the called party's handset from the calling party's handset.

The Office Action, however, asserts that the selection of one of a plurality of vocoders for loading into a handset based on the type of network is described at col. 1, lines 56-63 and col. 5, lines 38-49 of Palermo.

Applicants' attorney disagrees. At the indicated location, Palermo merely describes the following:

> Palermo: Col. 1, lines 56-63 (actually, col. 1, line 56 – col. 2, line 8)
> The invention is directed to a software radio in which operation is, for the most part, effected by a software program that runs on a generic radio platform. Interoperable waveform modes are added as software applications in a manner similar to adding applications to a personal computer. In accordance with one aspect of the invention, the radio user or operator selects stored waveforms on demand as communications requirement dictate. As is described below, one embodiment of the invention utilizes nonvolatile storage to implement a plurality of waveforms. The

operator may place one or more of the waveforms in cache random access memory such that rapid switching between the selected waveforms can occur. In addition, the operator may switch from one waveform mode to another to communicate over different radio networks, such as the Iridium satellite communication network manufactured by Motorola, Inc., TDMA and/or CDMA cellular networks, or other land mobile two-way radio systems such as the IDEN system by Motorola, Inc., or can broadcast on all or a number of them simultaneously.

Palermo: Col. 5, lines 38-49 (actually, col. 5, lines 26 – col. 6, line 2)

FIG. 8 illustrates an arrangement for use with processors which permits the rapid switching of waveform functionality. In accordance with an embodiment of the invention, the functionality of a processor is obtained from a collection of waveform software accessible to each processor. As shown in FIG. 8 three processors 807, 809, 811 each have associated therewith cache memory 813, 815, 817 respectively. A memory 801 accessible to each of processors 807, 809, 811 contains waveform software 803, 805, 806 for the various waveforms that may be processed. The memory 801 is for example a disk drive. To permit the rapid switching between waveforms, high-speed memory such as ram or random access memory is used for the caches 813, 815, 817. In operation, if a user of the system utilizing the processors selects a waveform to be utilized, the system processors 807, 809, 811 retrieve the appropriate waveform software from hard disk memory 801 and causes the appropriate software to be stored in the cache memories 813, 815, 817. Thus, for example, if waveform 1 is selected, waveform 1 vocoder software 819 is retrieved from memory 801 and stored in cache 813; waveform 1 encryption software 821 is retrieved from memory 801 and stored in cache 815; and waveform 1 modulator software 823 is retrieved from memory 801 and stored in cache 817. Similarly, software for other waveforms is retrieved from memory 801 and stored in caches 813, 815, 817 for other selected waveforms. Thus in accordance with one aspect of the invention, all of the constituent parts of a wave form application function are distributed to the processors that need to execute them. As shown in FIG. 8, no designation is made as to whether the system is operating as receiver or as transmitter. The operation of the system of FIG. 8 is the same whether operating as receiver, transmitter or transceiver. Operation of the system structure of FIG. 8 is shown in FIG. 9. In step 901, the user selects the waveform or waveforms that are to be used. In response to such selection, the system retrieves the waveform application routines from memory 801 as indicated at step 903. The waveform applications are stored in the cache memories 813, 815, 817 for the processors 807, 809, 811 as indicated at step 905. In step 905, the waveform application is disseminated to each processor cache as necessary to process the related waveform. At step 907, waveform programmable information such as bandwidth, sample rates and frequencies of operation are provided.

The above portion of Palermo merely describes switching between waveforms in the handset according to the type of network communicating with that handset, not according to the type of network communicating with another handset. Specifically, Palermo does not teach or

suggest loading one of a plurality of vocoders into a processor of a called party's handset based on a particular type of network communicating with a calling party's handset.

Similarly, with regard to claims 1-16, the references do not teach or suggest transmitting a notification to a called party's network that a calling party's handset is calling from a particular type of network, and loading one of a plurality of software-defined vocoders into the called party's handset based on the transmitted notification, wherein the loaded software-defined vocoder, when executed by the called party's handset, translates voice data communicated between the calling party's handset and the called party's handset.

The Office Action, however, asserts that Sieppi discloses most of the elements of these claims. Specifically, the Office Action states that Sieppi discloses a method for tunneling voice data over one or more networks, comprising: sending a call set-up message from the first or second subscriber station to a switching means of the mobile radio communication network to setup a call between the first and second subscriber stations; determining on the basis of the call setup message whether the second subscriber station is of a type also comprising an audio data encoding/decoding means and setting up a call between the first and second subscriber station. Further, the Office Action states that Sieppi discloses that if the second subscriber station is not capable of performing the speech encoding decoding then the subscriber station type determining means switches on an audio data encoding/decoding means in a base station controller.

However, the Office Action acknowledges that Sieppi does not expressly disclose loading a software-defined vocoder into the called party. Nonetheless, the Office Action cites Palermo as teaching the selection of the vocoder based on the type of network, at col. 3, lines 60-64 and col. 5, line 26 – col. 6, line 11 of Palermo. Consequently, the Office Action asserts that it would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Palermo of loading a software defined vocoder to the second subscriber station disclosed by Sieppi.

Applicants' attorney disagrees. The pertinent locations in Sieppi merely describe the following:

> Sieppi: Col. 5, line 65 – Col. 6, line 24
>
> This object is solved by a method for performing data communications between a first subscriber station (MS) of a mobile radio communication network (PLMN) and a second subscriber station (WS) connectable to said mobile radio communication network (PLMN), wherein at least said first subscriber station (MS) comprises an audio data encoding/decoding means (CODEC), comprising the

following steps: sending a call set-up message from said first or second subscriber station (MS) to a switching means (BSC, MSC/VLR) of said mobile radio communication network (PLMN) to set up a call between said first and second subscriber stations (WS, MS); determining on the basis of said call setup message whether said second subscriber station (WS) is of a type also comprising an audio data encoding/decoding means (CODEC); setting up a call between said first and second subscriber station (WS); switching off an audio data encoding/decoding means (DECOD) in said switching means (BSC, MSC/VLR), if said second subscriber station (WS) also comprises an audio data encoding/decoding means (CODEC); and encoding/decoding audio data at said first and second subscriber station (MS, WS) using said respective encoding/decoding means (CODEC) and communicating said coded audio data through said switching means (BSC, MSC/VLR) without applying an audio data coding/decoding thereto in said switching means (BSC, MSC/VLR).

Sieppi does not teach or suggest transmitting a notification to a called party's network that a calling party's handset is calling from a particular type of network, and then loading one of a plurality of software-defined vocoders into the called party's handset based on the transmitted notification, wherein the loaded software-defined vocoder, when executed by the called party's handset, translates voice data communicated between the calling party's handset and the called party's handset.

Instead, Sieppi only describes at most a single encoder/decoder in the handset and switching off the encoder/decoder in the network, if the handset has the necessary encoder/decoder. In Sieppi, no notification of network type is transmitted, and there is no selection, or switching, or any control, of a plurality of vocoders in the handset, or any loading of a selected vocoder for execution in the handset.

In addition, at the indicated locations, Palermo merely describes the following:

Palermo: Col. 3, lines 60-64 (actually, col. 3, lines 45-64)

FIG. 4 illustrates the receiver of FIG. 3 in block diagram form. RF signals are received at antenna 301 and may be amplified by a low noise amplifier (lna) 401 which is a conventional design, but ideally is of a broadband design. The output of lna 401 is applied to an rf down converter 303 which includes an rf down converter 411 of conventional design which for example generates phase and quadrature signals I and Q. The outputs I and Q are applied to analog to digital converters 407, 409 which are of conventional design. The I and Q outputs are applied to processors 403. The processors 403 provide the functions of demodulation 305, decryption 307 and voice decompression 309. Just as the processors 203 of FIG. 2 may be implemented as one or more processors, the processors 403 may similarly be one or more processors. The output of the processors 403 is a digital data stream that digital to analog converter 405 converts to analog speech signals. Multiple waveforms may

be accomplished by executing different software routines in processors 403. The [illegible] different software processors 403 may in a transceiver be included in processors 203.

Palermo: Col. 5, line 26 - col. 6, line 11)

FIG. 8 illustrates an arrangement for use with processors which permits the rapid switching of waveform functionality. In accordance with an embodiment of the invention, the functionality of a processor is obtained from a collection of waveform software accessible to each processor. As shown in FIG. 8 three processors 807, 809, 811 each have associated therewith cache memory 813, 815, 817 respectively. A memory 801 accessible to each of processors 807, 809, 811 contains waveform software 803, 805, 806 for the various waveforms that may be processed. The memory 801 is for example a disk drive. To permit the rapid switching between waveforms, high-speed memory such as ram or random access memory is used for the caches 813, 815, 817. In operation, if a user of the system utilizing the processors selects a waveform to be utilized, the system processors 807, 809, 811 retrieve the appropriate waveform software from hard disk memory 801 and causes the appropriate software to be stored in the cache memories 813, 815, 817. Thus, for example, if waveform 1 is selected, waveform 1 vocoder software 819 is retrieved from memory 801 and stored in cache 813; waveform 1 encryption software 821 is retrieved from memory 801 and stored in cache 815; and waveform 1 modulator software 823 is retrieved from memory 801 and stored in cache 817. Similarly, software for other waveforms is retrieved from memory 801 and stored in caches 813, 815, 817 for other selected waveforms. Thus in accordance with one aspect of the invention, all of the constituent parts of a wave form application function are distributed to the processors that need to execute them. As shown in FIG. 8, no designation is made as to whether the system is operating as receiver or as transmitter. The operation of the system of FIG. 8 is the same whether operating as receiver, transmitter or transceiver. Operation of the system structure of FIG. 8 is shown in FIG. 9. In step 901, the user selects the waveform or waveforms that are to be used. In response to such selection, the system retrieves the waveform application routines from memory 801 as indicated at step 903. The waveform applications are stored in the cache memories 813, 815, 817 for the processors 807, 809, 811 as indicated at step 905. In step 905, the waveform application is disseminated to each processor cache as necessary to process the related waveform. At step 907, waveform programmable information such as bandwidth, sample rates and frequencies of operation are provided.

In operation of the system one or more of the waveform software is stored in dedicated memory which is rapidly accessed at power up of the radio. By adding flash memory 841, 843, 845 to each of the processors 807, 809, 811 respectively, the last number of waveforms used by the radio user prior to power down are stored in memory 841, 843, 845 and are instantly loaded at next power up. This permits the software radio to power up for substantially instantaneous use.

As previously stated, the above portion of Palermo merely describes switching between waveforms in the handset according to the type of network communicating with that handset, not according to the type of network communicating with another handset.

However, Palermo does not teach or suggest loading one of a plurality of vocoders into a processor of a called party's handset based on a particular type of network communicating with a calling party's handset.

Finally, Hsu fails to overcome the deficiencies of Palermo and/or Sieppi. Recall that Hsu was cited merely for describing obtaining up-to-date software for the vocoder from a web server. However, Hsu does not teach or suggest that the handset may have a plurality of vocoders, or that the loaded vocoder is selected based on a particular type of network communicating with the handset. Indeed, the teaching of Hsu is to have only one type of vocoder in the handset, although the version of the vocoder may be updated from a web site.

Thus, the references, taken individually or in combination, do not anticipate or render obvious Applicants' claimed invention. Moreover, the various elements of Applicants' claimed invention together provide operational advantages over the references. In addition, Applicants' invention solves problems not recognized by the references.

Thus, Applicants submit that independent claims 1, 5, 9, 13, 17, and 21 are allowable over Palermo, Sieppi and Hsu. Further, dependent claims 2-4, 6-8, 10-12, 14-16, 18-20, and 22-24 are submitted to be allowable over Palermo, Sieppi and Hsu in the same manner, because they are dependent on independent claims 1, 5, 9, 13, 17, and 21, respectively, and because they contain all the limitations of the independent claims. In addition, dependent claims 2-4, 6-8, 10-12, 14-16, 18-20, and 22-24 recite additional novel elements not shown by Palermo, Sieppi and Hsu.

III. CONCLUSION

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

GATES & COOPER LLP
Attorneys for Applicants

Howard Hughes Center
6701 Center Drive West, Suite 1050
Los Angeles, California 90045
(310) 641-8797

Date: March 7, 2005

By: _____
Name: George H. Gates
Reg. No.: 33,500

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